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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/767,539	01/23/2001	Steven Adler-Golden	SPSC/001/US	2985

7590

10/10/2003

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EXAMINER

GUTIERREZ, ANTHONY

ART UNIT

PAPER NUMBER

2857

DATE MAILED: 10/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/767,539

Applicant(s)

ADLER-GOLDEN ET AL.

Examiner

Anthony Gutierrez

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5,7, and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Holzer-Popp et al. (US Patent 6,484,099).

As to claim 1, Holzer-Popp discloses an improved method of correcting for atmospheric effects on a remote image of the Earth's surface taken from above, wherein the image comprises a number of images of the same scene each including a large number of pixels, each at a different wavelength band, and including infrared through visible wavelengths, comprising: providing a radiation transport model that relates spectral radiance to spectral reflectance via a set of parameters (col. 4, line 60- col. 5, line 34) ; providing a discrete number of trial aerosol visibility values for at least one of one or both of trial aerosol property values and aerosol types; using the radiation transport model to calculate the model parameter values for each of the trial aerosol visibility values (col. 6, lines 35-50); selecting image pixels having a one or more presumed, predefined ratios of reflectance's among two or more specific wavelength bands (col. 6, lines 5-18); using the radiation transport model parameters to determine

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the surface reflectance for the selected image pixels for each of the specific wavelength bands for each combination of trial visibility value and trial aerosol property value or values, or aerosol type (col. 6, lines 35-50); comparing the determined surface reflectance's to the predefined ratio of reflectances; and resolving from the comparison a corrected image visibility value for each trial aerosol property value or values or aerosol type (col. 6, line 60-col. 7, line 9).

As to claims 2 and 3, Holzer-Popp et al. further discloses using the radiation transport model to calculate the model parameter values includes performing calculations for a plurality of geometric conditions of solar illumination and sensor viewing, storing the calculation results, and interpolating the stored results to the specific geometric conditions that apply to the image being analyzed (col. 5, lines 35-58).

As to claim 4, Holzer-Popp et al. further discloses using the radiation transport model to calculate the model parameter values includes performing calculations of the radiance from the surface that is scattered into the sensor by weighting the spectra from different parts of the surface according to their contributions to each pixel (col. 6, line 60-col. 7, line 10).

As to claim 5, Holzer-Popp et al. further disclose that the radiation transport model includes MODTRAN (col. 6, line 66).

As to claim 7, Holzer-Popp et al. further implies that the viewing angles can be off-nadir (col. 5, lines 7-9) by disclosing that the sensor data has different geometric resolutions. Off-nadir angles are implied because if there were only one geometric

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resolution, it might be limited to nadir, but if there is more than one geometric resolution then one must be off-nadir.

As to claim 36, Holzer-Popp et al. further discloses that the number of sets of either trial aerosol property values or aerosol types is greater than one, the number of specific wavelength bands is greater than two, the number of predefined ratios of reflectances is greater than one, and in which by comparing the determined surface reflectances to the predefined ratios of reflectance's both the corrected image visibility value and the aerosol property value or values or aerosol type are resolved (col. 7, lines 20-35).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holzer-Popp et al. (US Patent 6,484,099).

As to claim 6, Holzer-Popp et al. discloses that the sensors can be satellite or airborne sensors (col. 1, lines 10 and 11) and further implies that that the angles can be off-nadir (col. 5, lines 7-9) by disclosing that sensor data has different geometric resolutions. Off-nadir angles are implied because if there were only one geometric

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resolution, it might be limited to nadir, but if there is more than one geometric resolution then one must be off-nadir.

Holzer-Popp et al. does not specifically disclose that the sensor viewing angle is nadir.

The Examiner, however, takes official notice that one of ordinary skill in the art would recognize that the commonly used nadir direction which limits sensing to a line of sight directly perpendicular to the flight of sensing aircraft would require less complications in positioning and processing of data than off-nadir angles.

It would therefore have been obvious to one of ordinary skill in the art at the time of invention to use the nadir direction for the viewing angle to make use of the most simple configuration and data for processing.

### **Conclusion**

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent Application Publication US 2002/0193971 A1 discloses a system for assessing the probability of detection of a target of a hyperspectral sensing system.

US Patent 6,266,428 discloses a system for remote detection of hazardous aerosols through the use of MODTRAN.

US Patent 6,161,075 discloses a method for estimating errors of environmental data obtained from infrared radiometric sensors.

US Patent 6,075,891 discloses a method for using non-literal imagery exploitation and generic computing techniques for automatic object detection recognition, and materials identification on multispectral and hyperspectral imagery.

US Patent 5,315,513 discloses a MODTRAN implemented moderate resolution propagation model of the earth's atmosphere used for predicting parameters including radiance.

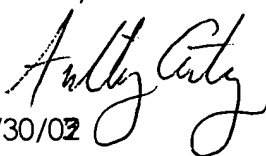
The papers of Matthew et al. and Tanre et al. were found in the case but were not included on the Information Disclosure Statement of the Applicant. They have been considered by the Examiner and are cited on the attached Form PTO-892.


6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Gutierrez whose telephone number is (703) 305-1973. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on (703) 308-1677. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0976.

Anthony Gutierrez

  
9/30/02

  
MARC S. HOFF  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800